## AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A correlator that ~~which~~ receives an input signal including a fixed pattern formed by spreading a predetermined number of symbols comprising ~~constituting~~ a fixed word, with pseudorandom noise code, ~~and which is comprised of a first sub-correlator and a second sub-correlator,~~ comprising:

a first sub-correlator; and

a second sub-correlator, ~~and~~

wherein said first sub-correlator detects correlation between said input signal and said pseudorandom noise code for one symbol length, ~~and~~

wherein said second sub-correlator detects correlation ~~detects correlation~~ between a correlation value output from said first sub-correlator and said fixed word for said predetermined number of symbols, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

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2. (Canceled).

3. (Currently amended) The correlator as set forth in claim 1 ~~2~~, further comprising:

maximum detecting means for receiving ~~which receives~~ an output transmitted from said plurality of second sub-correlators ~~second sub-correlator~~, and outputting ~~outputs~~ a maximum signal for informing synchronous detection when a correlation value transmitted from each of said second sub-correlators comprises a ~~is in~~ maximum.

4. (Currently amended) A correlator comprising:

a first sub-correlator that ~~which~~ receives a fixed pattern including ~~having~~ a code length N ($N = M \times K$), as an input signal comprised of signals obtained by spreading a fixed word having a length of K ~~symbol (K is a predetermined positive integer )~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer )~~, and detects a correlation value between a k-th (0 ~~o~~ $\leq k < K$) symbol including an ~~having a~~ M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as $k \times M \leq m < (k + 1) \times M$ ~~)~~ and M and K comprise predetermined positive integers; and

a second sub-correlator that ~~which~~ receives data corresponding to K symbols, including ~~about~~ a correlation value output from said first sub-correlator, and outputs a correlation value between said data and said fixed word, and

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wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

5. (Currently amended) A correlator comprising:

a first sub-correlator that ~~which~~ receives a fixed pattern having a code length N ($N = M \times K$), as an input signal comprised of signals obtained by spreading a fixed word having a length of K symbols ~~symbol (K is a predetermined positive integer )~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer )~~, and detects a correlation value between a k-th (0 ~~o~~ $\leq k < K$) symbol having a M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as $k \times M \leq m < (k + 1) \times M$ ~~)~~ and M and K comprise predetermined positive integers;

a memory that ~~which~~ stores a predetermined number of correlation values per ~~a~~ symbol, said ~~which~~ correlation values being ~~are~~ transmitted from said first sub-correlator and ~~are~~ different in a phase from one another with respect to said input

signal, and that ~~which~~ stores correlation values substantially ~~totally~~ corresponding to K symbols ~~symbol~~; and

a second sub-correlator that ~~which~~ receives a data corresponding to K symbols, reads ~~read out of~~ said memory for each of ~~every~~ said predetermined number, and outputs a correlation value between said data and said fixed word.

6. (Currently amended) A correlator which receives a fixed pattern having a code length N ($N = M \times K$) which fixed pattern is obtained by spreading a fixed word having a length of K symbols ~~symbol~~ ~~(K is a predetermined positive integer)~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer)~~, comprising:

a first sub-correlator which receives said fixed pattern as an input signal, and detects a correlation value between a k-th (0 ~~o~~ $\leq k < K$) symbol including an ~~having a~~ M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as $k \times M \leq m < (k + 1) \times M$ ~~)~~ and M and K comprise predetermined positive integers;

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a memory that ~~which~~ stores a predetermined number (L) of correlation values per ~~a~~ symbol, said ~~which~~ correlation values being ~~are~~ transmitted from said first sub-correlator and ~~are~~ different in a phase from one another with respect to said input signal, and that ~~which~~ stores L x K correlation values substantially ~~totally~~ corresponding to K symbols ~~symbol~~;

a reading-address controller that ~~which~~ outputs a reading-address ~~used~~ for reading data corresponding to K symbols from ~~symbol out of~~ said memory for each of said ~~by every~~ L correlation values; and

a second sub-correlator that ~~which~~ receives said data corresponding to K symbols ~~symbol~~, read from ~~out of~~ said memory for each of said ~~by every~~ L correlation values, and outputs a correlation value between said data and said fixed word.

7. (Currently amended) The correlator as set forth in claim 6, further comprising:

a writing-address controller that ~~which~~ outputs a writing-address, ~~and~~

wherein a correlation value output from said first sub-correlator is written into an address in said memory, said address being ~~which address is~~ designated by said writing-address controller.

8. (Currently amended) The correlator as set forth in claim 5, wherein said second sub-correlator comprises ~~correlator includes said first sub-correlator by one and~~ a plurality of ~~said~~ second sub-correlators a number of which is ~~by the number~~ determined in accordance with types of said fixed word.

9. (Currently amended) The correlator as set forth in claim 6, wherein said second sub-correlator comprises ~~correlator includes said first sub-correlator by one and~~ a plurality of ~~said~~ second sub-correlators a number of which is ~~by the number~~ determined in accordance with types of said fixed word.

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10. (Currently amended) The correlator as set forth in claim 8, further comprising:

maximum detecting means for receiving ~~which receives~~ an output transmitted from at least one of said plurality of second sub-correlators ~~said second sub-correlator~~, and outputting ~~outputs~~ a maximum signal for informing synchronous detection when a correlation value transmitted from one of said at least one of said plurality ~~each~~ of said second sub-correlators comprises a ~~is in~~ maximum.

11. (Currently amended) The correlator as set forth in claim 9, further comprising:

maximum detecting means for receiving ~~which receives~~ an output transmitted from at least one of said plurality of second sub-correlators ~~said second sub-correlator~~, and outputting ~~outputs~~ a maximum signal for informing synchronous detection when a correlation value transmitted from one of said at least one of said plurality ~~each~~ of said

second sub-correlators comprises a ~~is in~~ maximum.

12. (Currently amended) The correlator as set forth in claim 5, further comprising:
a code switch that ~~which~~ switches said pseudorandom noise code ~~used~~ for detecting correlation with said input signal.

13. (Currently amended) The correlator as set forth in claim 6, further comprising:
a code switch that ~~which~~ switches said pseudorandom noise code ~~used~~ for detecting correlation with said input signal.

14. (Currently amended) The correlator as set forth in claim 5, wherein said correlation values being ~~which are~~ different in a phase from one another, comprise ~~are~~ correlation values including ~~having~~ phases different from one another by one or ½ chip.

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15. (Currently amended) The correlator as set forth in claim 6, wherein said correlation values being ~~which are~~ different in a phase from one another, comprise ~~are~~ correlation values including ~~having~~ phases different from one another by one or ½ chip.

16. (Currently amended) The correlator as set forth in claim 5, wherein said memory comprises ~~is comprised of~~ a dual port type random access memory.

17. (Currently amended) The correlator as set forth in claim 6, wherein said memory comprises ~~is comprised of~~ a dual port type random access memory.

18. (Currently amended) A correlator comprising:
a first sub-correlator that receives a fixed pattern having a code length N (N =

M × K), as an input signal comprised of signals obtained by spreading a fixed word having a length of K symbols, at a rate of M chips/symbol, and detects a correlation value between a k-th ($0 \leq k < K$) symbol including an M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises an integer defined as $k \times M \leq m < (k + 1) \times M$ and M and K comprise predetermined positive integers; and

~~The correlator as set forth in claim 4, wherein said correlator includes~~

a comparator that ~~in place of said second sub-correlator which comparator~~ compares K correlation values transmitted from said first sub-correlator to said fixed word to check whether they are coincident with each other.

19. (Currently amended) A correlator comprising:

a first sub-correlator that receives a fixed pattern having a code length N ($N = M \times K$), as an input signal comprised of signals obtained by spreading a fixed word having a length of K symbols, at a rate of M chips/symbol, and detects a correlation value between a k-th ($0 \leq k < K$) symbol including an M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises an integer defined as $k \times M \leq m < (k + 1) \times M$ and M and K comprise predetermined positive integers;

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a memory that stores a predetermined number of correlation values per symbol, said correlation values being transmitted from said first sub-correlator and different in a phase from one another with respect to said input signal, and that stores correlation values substantially corresponding to K symbols; and

~~The correlator as set forth in claim 5, wherein said correlator includes~~

a comparator that ~~in place of said second sub-correlator which comparator~~ compares K correlation values transmitted from said first sub-correlator to said fixed word to check whether they are coincident with each other.

20. (Currently amended) A correlator which receives a fixed pattern having a code length N ($N = M \times K$) which fixed pattern is obtained by spreading a fixed word

having a length of K symbols, at a rate of M chips/symbol, comprising:

a first sub-correlator which receives said fixed pattern as an input signal, and detects a correlation value between a k-th ($0 \leq k < K$) symbol including an M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises an integer defined as $k \times M \leq m < (k + 1) \times M$ and M and K comprise predetermined positive integers;

a memory that stores a predetermined number (L) of correlation values per symbol, said correlation values being transmitted from said first sub-correlator and different in a phase from one another with respect to said input signal, and that stores L x K correlation values substantially corresponding to K symbols;

a reading-address controller that outputs a reading-address for reading data corresponding to K symbols from said memory for each of said L correlation values; and

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~~The correlator as set forth in claim 6, wherein said correlator includes~~

a comparator that ~~in place of said second sub-correlator which comparator~~ compares K correlation values transmitted from said first sub-correlator to said fixed word to check whether they are coincident with each other.

21. (Currently amended) A CDMA (Code Division Multiple Access) ~~type~~ communication device including a correlator which receives an input signal including a fixed pattern formed by spreading a predetermined number of symbols comprising ~~constituting~~ a fixed word, with pseudorandom noise code, ~~and which is comprised of a first sub-correlator and a second sub-correlator,~~ comprising:

a first sub-correlator; and

a second sub-correlator, ~~and~~

wherein said first sub-correlator detects correlation between said input signal and said pseudorandom noise code for one symbol length, and

wherein said second sub-correlator detects correlation ~~detects correlation~~

between a correlation value output from said first sub-correlator and said fixed word for said predetermined number of symbols, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

22. (Currently amended) A CDMA (Code Division Multiple Access) ~~type~~ communication device including a correlator comprising:

a first sub-correlator that ~~which~~ receives a fixed pattern including ~~having~~ a code length N ($N = M \times K$), as an input signal comprised of signals obtained by spreading a fixed word having a length of K symbols ~~symbol (K is a predetermined positive integer)~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer)~~, and detects a correlation value between a k-th (0 ~~o~~ $\leq$ k ~~x~~ < K) symbol including an ~~having a~~ M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as $k \times M \leq m < (k + 1) \times M$ ~~)~~ and M and K comprise positive integers; and

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a second sub-correlator that ~~which~~ receives data corresponding to K symbols, including ~~about~~ a correlation value output from said first sub-correlator, and outputs a correlation value between said data and said fixed word, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

23. (Currently amended) A CDMA (Code Division Multiple Access) ~~type~~ communication device including a correlator comprising:

a first sub-correlator that ~~which~~ receives a fixed pattern having a code length N ($N = M \times K$), as an input signal comprised of signals obtained by spreading a fixed word having a length of K symbols ~~symbol (K is a predetermined positive integer)~~, at

a rate of M chips/symbol ~~(M is a predetermined positive integer)~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer)~~, and detects a correlation value between a k-th (0 ~~e~~ ≤ k < K) symbol including an ~~having a~~ M chip length, among said fixed patterns, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as k × M ≤ m < (k + 1) × M ~~)~~ and M and K comprise predetermined positive integers;

a memory that ~~which~~ stores a predetermined number of correlation values per ~~a~~ symbol, said ~~which~~ correlation values being ~~are~~ transmitted from said first sub-correlator and ~~are~~ different in a phase from one another with respect to said input signal, and that ~~which~~ stores correlation values substantially ~~totally~~ corresponding to K symbols ~~symbol~~; and

a second sub-correlator that ~~which~~ receives data corresponding to K symbols, reads ~~read out of~~ said memory for each ~~every~~ said predetermined number, and outputs a correlation value between said data and said fixed word.

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24. (Currently amended) A CDMA (Code Division Multiple Access) ~~type~~ communication device including a correlator that ~~which~~ receives a fixed pattern having a code length N (N = M × K), said ~~which~~ fixed pattern being ~~is~~ obtained by spreading a fixed word having a length of K symbols ~~symbol (K is a predetermined positive integer)~~, at a rate of M chips/symbol ~~(M is a predetermined positive integer)~~,

said correlator comprising:

a first sub-correlator value between a k-th (0 ~~e~~ ≤ k < K) symbol having a M chip length, among said fixed pattern, and pseudorandom noise code Sm, wherein m comprises ~~(m is~~ an integer defined as k × M ≤ m < (k + 1) × M ~~)~~ and M and K comprise predetermined positive integers;

a memory that ~~which~~ stores a predetermined number (L) of correlation values per ~~a~~ symbol, said ~~which~~ correlation values being ~~are~~ transmitted from said first sub-correlator and ~~are~~ different in a phase from one another with respect to said input

signal, and that ~~which~~ stores L × K correlation values substantially ~~totally~~ corresponding to K symbols ~~symbol~~;

a reading-address controller that ~~which~~ outputs a reading-address ~~used~~ for reading data corresponding to K symbols from ~~symbol out of~~ said memory for each of said ~~by every~~ L correlation values; and

a second sub-correlator that ~~which~~ receives said data corresponding to K symbols ~~symbol~~, reads ~~read out of~~ said memory for each of said ~~by every~~ L correlation values, and outputs a correlation value between said data and said fixed word.

25. (Currently amended) A spread spectrum type communication device comprising a correlator that performs ~~used for carrying out~~ synchronization capture,

said correlator comprising:

a first sub-correlator that ~~which~~ detects correlation between an input signal and pseudorandom noise code for inverse-spreading said input signal having been spectrum-spread; and

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a second sub-correlator that ~~which~~ detects correlation between a predetermined number of correlation outputs transmitted from said first sub-correlator, and a synchronization pattern, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

26. (Currently amended) A spread spectrum ~~type~~ communication device comprising a correlator that performs ~~used for carrying out~~ synchronization capture,

said correlator comprising:

a first sub-correlator that ~~which~~ detects correlation between an input signal and pseudorandom noise code for inverse-spreading said input signal having been spectrum-spread; and

 

a comparator that ~~which~~ compares a predetermined number of correlation outputs transmitted from said first sub-correlator, to a synchronization pattern for checking whether they are coincident with each other, and

a second sub-correlator comprising a plurality of second sub-correlators a number of which is determined in accordance with types of a fixed word.

27. (New) A correlator comprising:

a first sub-correlator; and

a second sub-correlator,

wherein said first sub-correlator receives an input signal including a fixed pattern formed by spreading a predetermined number of symbols with pseudorandom noise code, said symbols including a fixed word,

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wherein said first sub-correlator detects correlation between said input signal and said pseudorandom noise code for one symbol length and outputs a first correlation value, and

wherein said second sub-correlator detects correlation between said first correlation value and said fixed word for said predetermined number of symbols and outputs a second correlation value, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

28. (New) A correlator comprising:

a first sub-correlator; and

a second sub-correlator,

wherein said first sub-correlator receives a fixed pattern including a code length N, as an input signal comprised of signals obtained by spreading a fixed word including a length of K symbols, at a rate of M chips/symbol,

wherein said first sub-correlator detects a correlation value between a k-th symbol including an M chip length, among said fixed pattern, and pseudorandom noise code Sm,

wherein said second sub-correlator receives data corresponding to K symbols, including a correlation value output from said first sub-correlator, and outputs a correlation value between said data and said fixed word,

wherein $N = M \times K$, M and K comprise predetermined positive integers, $0 \leqq k < K$, and m comprises an integer defined as $k \times M \leqq m < (k + 1) \times M$, and

wherein said second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of a fixed word.

29. (New) A correlator comprising:

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means for receiving an input signal including a fixed pattern formed by spreading a predetermined number of symbols with pseudorandom noise code, said symbols including a fixed word, detecting correlation between said input signal and said pseudorandom noise code for one symbol length, and outputting a first correlation value;

means for detecting correlation between said first correlation value and said fixed word for said predetermined number of symbols and outputting a second correlation value, and

means for receiving said second correlation value, said means comprising a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

30. (New) A correlator comprising:

means for receiving a fixed pattern including a code length N, as an input signal comprised of signals obtained by spreading a fixed word including a length of K symbols, at a rate of M chips/symbol, and detecting a correlation value between a k-th

symbol including an M chip length, among said fixed pattern, and pseudorandom noise code Sm,

means for receiving data corresponding to K symbols, including a correlation value output from a first sub-correlator, and outputting a correlation value between said data and said fixed word,

wherein $N = M \times K$, M and K comprise predetermined positive integers, $0 \leqq k < K$, and m comprises an integer defined as $k \times M \leqq m < (k + 1) \times M$, and

a plurality of second sub-correlators a number of which is determined in accordance with types of said fixed word.

31. (New) The correlator as set forth in claim 28, further comprising:

a memory,

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wherein said memory stores a predetermined number of correlation values per a symbol, said correlation values being transmitted from said first sub-correlator and different in a phase from one another with respect to said input signal, and

wherein said memory stores correlation values substantially corresponding to K symbols.

32. (New) The correlator as set forth in claim 31, wherein said second sub-correlator reads said memory for each of said predetermined number.

33. (New) The correlator as set forth in claim 31, further comprising:

a writing-address controller that outputs a writing-address,

wherein a correlation value output from said first sub-correlator is written into an address in said memory, said address being designated by said writing-address controller.

34. (New) The correlator as set forth in claim 28, wherein said second sub-correlator comprises a plurality of second sub-correlators determined in accordance with types of said fixed word.

35. (New) The correlator as set forth in claim 34, further comprising:

means for receiving an output transmitted from at least one of said plurality of second sub-correlators and outputting a maximum signal for informing synchronous detection when a correlation value transmitted from one of said at least one of said plurality-of said second sub-correlators comprises a maximum.

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36. (New) A correlator that detects correlation for data including a predetermined length, comprising:

a plurality of sub-correlators,

wherein each of the sub-correlators comprises a length equal to a divisor of the predetermined length, and

wherein a correlation value output from one of the plurality of sub-correlators is received by another of the plurality of sub-correlators disposed downstream of the one of the plurality of sub-correlators, and

wherein a number of said plurality of correlators is determined in accordance with types of a fixed word.